

In the Claims

1. (currently amended) A process for the preparation of a polymeric alkoxyamine by atom transfer radical addition polymerization (ATRA) comprising the following steps

- a) reacting a mono nitroxide of formula (A) $X-Ln-NO\bullet$ (A); or
- b) reacting a bis nitroxide of formula (B) $\bullet ON-Ln-NO\bullet$ (B) with a bis-functional compound of formula (C) $X-Lh-X$ (C); or
- c) reacting a polynitroxide of formula (D) $Ln-[NO\bullet]_n$ (D) with a poly-functional compound of formula (E) $Lh-[X]_n$ (E);

in the presence of a transition metal or transition metal salt in its lower oxidation state and optionally a ligand, capable of complexing the transition metal or transition metal salt;

wherein

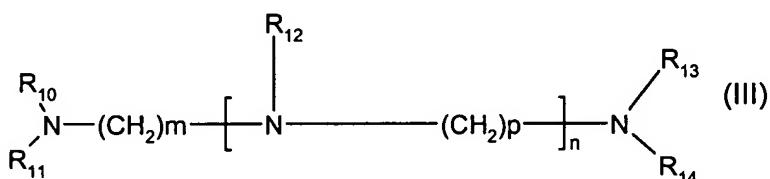
X is halogen or -SCN;

Ln is a n valent spacer group connecting the nitroxide group with the group X or with the other nitroxide groups;

Lh is a n valent spacer group connecting the groups X and

n is a number from 3 to 6.

2. (currently amended) A process according to claim 1 wherein the ligand is of formula III



wherein R₁₀, R₁₁, R₁₃ and R₁₄ are independently H, C₁-C₁₂alkyl, C₅-C₁₂cycloalkyl or aryl; R₁₂ is H, C₁-C₁₂alkyl, C₅-C₁₂cycloalkyl or aryl or a group -(CH₂)q-NR₁₀R₁₁;

m, p and q are numbers from 1-4; and

n is a number from 0 to 4; or

the ligand is a bicyclic or polycyclic heteroaliphatic ring.

3. (original) A process according to claim 1 wherein the ligand is selected from the group consisting of tris[2-(dimethylamino)ethyl]amine, N,N,N',N",N"-pentamethyldiethylenetriamine, N,N,N',N"-tetramethylethylenediamine, 1,1,4,7,10,10-hexamethyltriethylenetetramine, 1,4,7-trimethyl-1,4,7-triazacyclononane, 1,5,9-trimethyl-1,5,9-triazacyclododecane, 1,4,8,11-tetramethyl-1,4,8,11-tetraazacyclotetradecane, 2,2'-bipyridyl, 2,2'-bi(4-t-butyl)pyridyl and 2,2',2"-terpyridyl.

4. (original) A process according to claim 1 wherein the molar ratio between the transition metal or transition metal salt in its lower oxidation state and the halogen or -SCN containing compound is from 1:1 to 1:3.

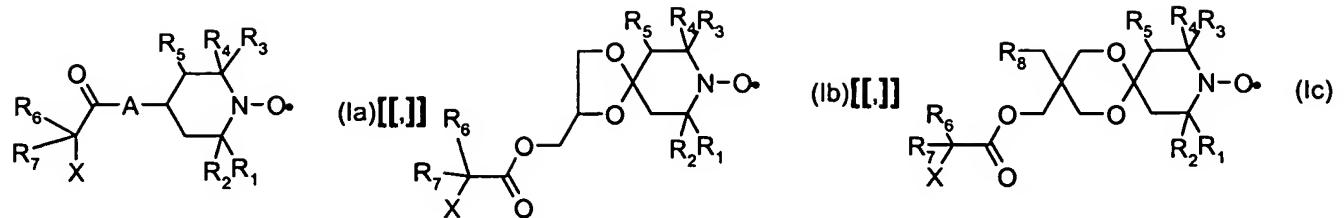
5. (original) A process according to claim 1 wherein the transition metal is selected from the group consisting of Cu, Fe, Mn, Mo, Cr, Ni and Ru and the transition metal salt in its lower oxidation state is a halogenide, sulfate, nitrate, carboxylate or trifluormethane sulfonate of these metals.

6. (original) A process according to claim 1 wherein the molar ratio between the ligand and the transition metal or transition metal salt in its lower oxidation state is from 0.5:1 to 1:5.

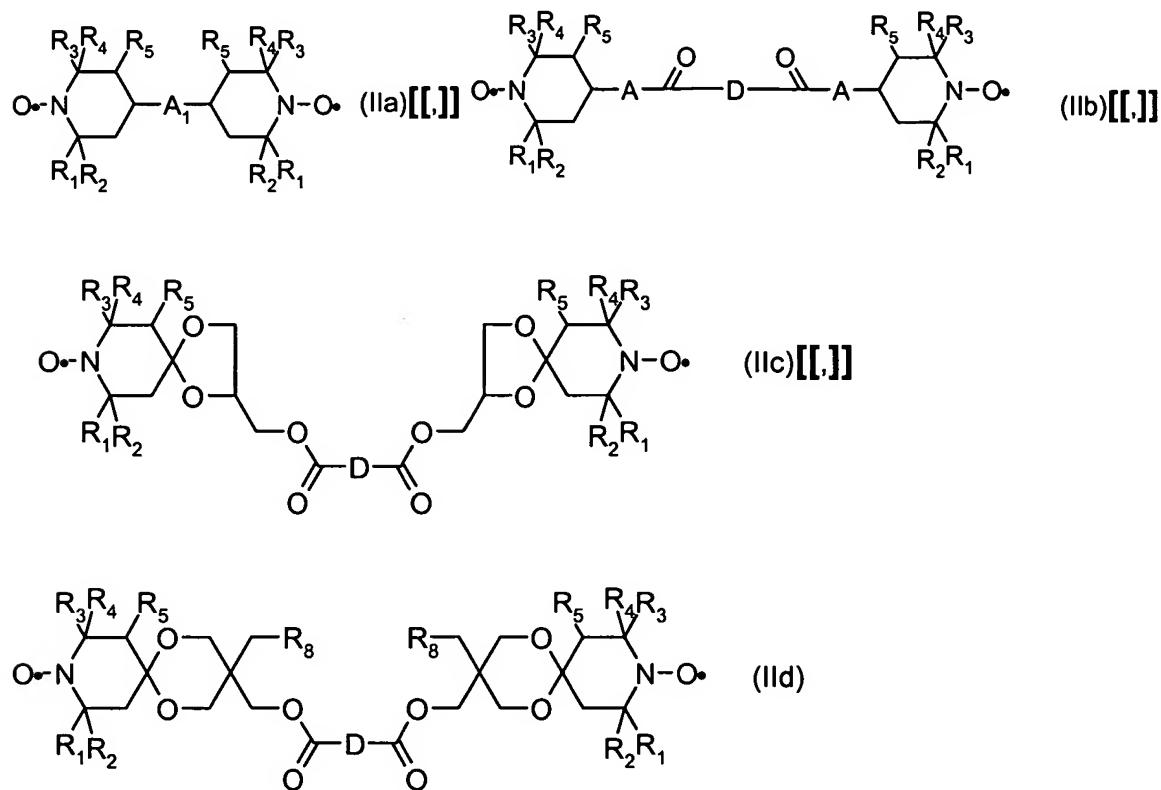
7. (original) A process according to claim 1 wherein the polymerization temperature is from -20°C to 100°C.

8. (currently amended) A process according to claim 1 wherein

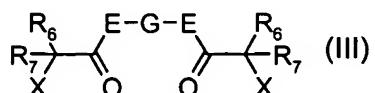
a) the mono nitroxide of formula (A) is of formula (Ia), (Ib) or (Ic)



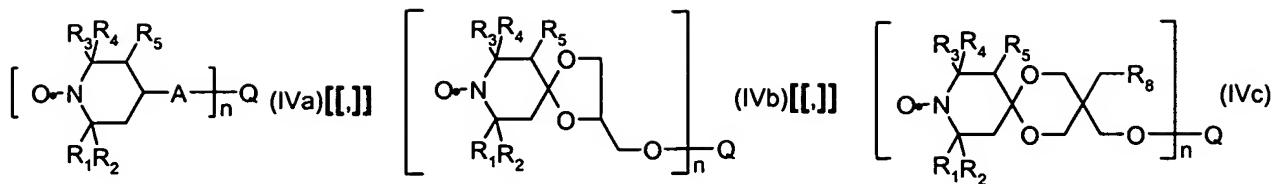
b) the bis dinitroxide of formula (B) is of formula (IIa), (IIb), (IIc) or (IId)



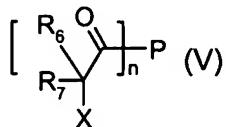
the compound of formula (C) is of formula (III)



c) the polynitroxide of formula D is of formula (IVa), (IVb) or (IV[(I)])c)



the compound of formula (E) is of formula (V)



wherein in the formulas

R₁, R₂, R₃ and R₄ are methyl or ethyl; or

R₁ and R₂ and/or R₃ and R₄ together with the carbon atom to which they are bonded form a C₅-C₈cycloalkyl_ring;

R₅ is H or methyl;

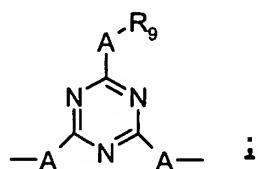
R₆ and R₇ are H, C₁-C₈-alkyl or aryl;

R₈ is H or methyl;

X is halogen or -SCN;

A is O or NR₉ wherein R₉ is H or C₁-C₁₈alkyl, C₅-C₁₂cycloalkyl or aryl;

A₁ is a group -NR₉-(CH₂)_a-NR₉- wherein a is a number from 2 to 12 or a group



D is a direct bond or C₁-C₁₂alkylene, C₅-C₁₂cycloalkylene or arylene, wherein the alkylene and cycloalkylene may be interrupted by one or more O, S or N atoms;

E is a direct bond, O or NR₉;

G is C₁-C₁₂alkylene, C₅-C₁₂cycloalkylene or arylene wherein the alkylene and cycloalkylene may be interrupted by one or more O, S or N atoms;

n is 3 or 4;

Q is the acyl residue of a trivalent or tetravalent carboxylic acid; and

P is the residue of a trivalent or tetravalent alcohol.

9. (currently amended) A process according to claim 8 comprising reacting a mono nitroxide
~~wherein the compound is~~ of formula (Ia), (Ib) or (Ic).

10. (currently amended) A process according to claim 9 wherein in the compounds is of formula
(Ia), (Ib) or (Ic);

R_1 , R_2 , R_3 and R_4 are methyl;

R_5 is H;

R_6 and R_7 are independently H or methyl;

R_8 is H or methyl;

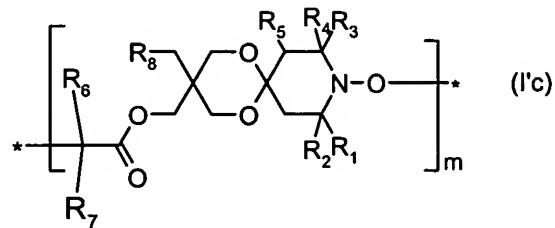
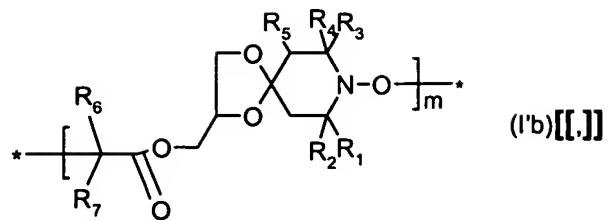
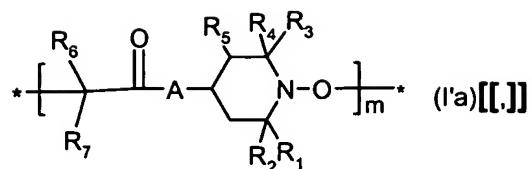
X is Cl or Br; and

A is O or NR_9 and R_9 is H or C_1-C_{18} alkyl.

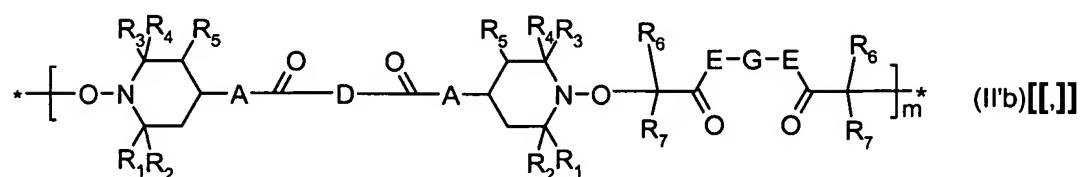
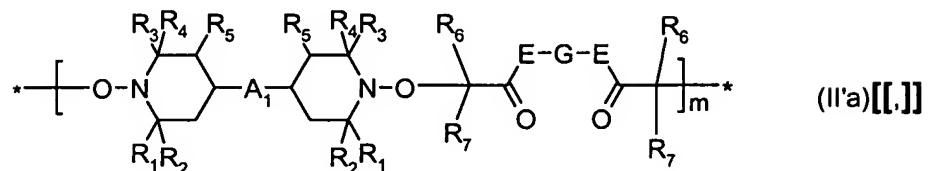
11. (currently amended) A process according to claim 10 comprising reacting a mono nitroxide
~~wherein the compound is~~ of formula (Ia).

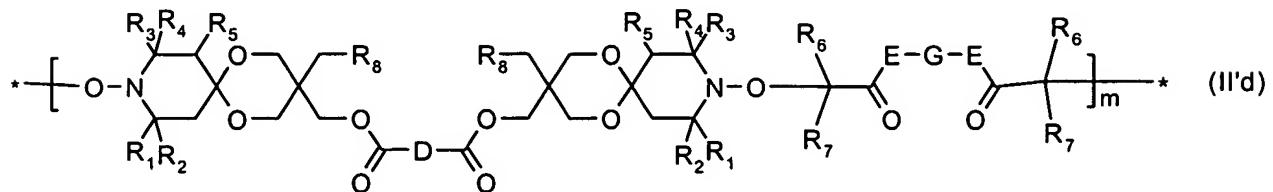
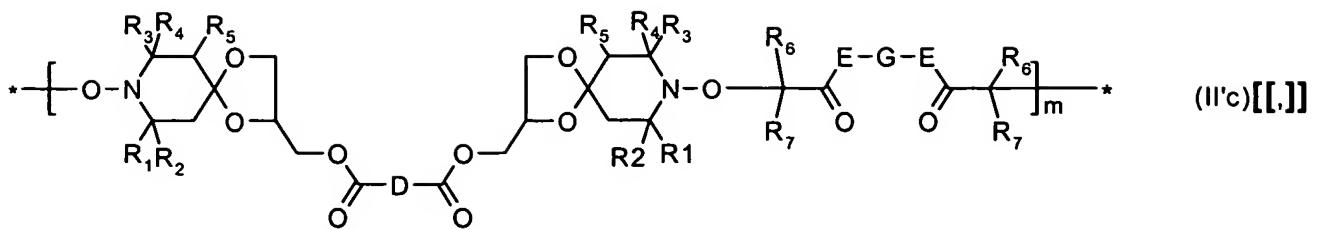
12. (currently amended) A polymer obtainedable by a process according to claim 1.

13. (currently amended) A polymer with a repetitive structural element of formula
(I'a), (I'b), (I'c)



or (II'a), (II'b), (II'c) or (II'd)





wherein in the formulas

m is a number from 1 to 5000;

R_1 , R_2 , R_3 and R_4 are methyl or ethyl; or

R_1 and R_2 and/or R_3 and R_4 together with the carbon atom to which they are bonded form a C_5 - C_8 cycloalkyl ring;

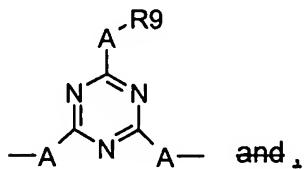
R_5 is H or methyl;

R_6 and R_7 are H, C_1 - C_8 -alkyl or aryl;

R_8 is H or methyl;

A is O or NR_9 wherein R_9 is H or C_1 - C_{18} alkyl, C_5 - C_{12} cycloalkyl or aryl;

A_1 is a group $-NR_9-(CH_2)_a-NR_9-$ wherein a is a number from 2 to 12 or a group

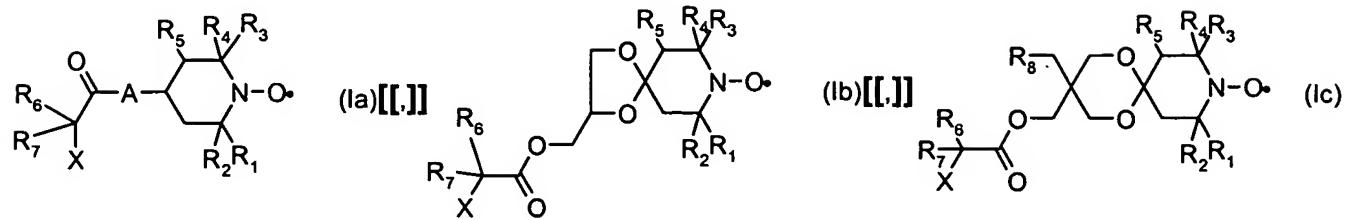


D is a direct bond or C_1 - C_{12} alkylene, C_5 - C_{12} cycloalkylene or arylene, wherein the alkylene and cycloalkylene may be interrupted by one or more O, S or N atoms;

E is a direct bond, O or NR_9 ; and

G is C_1 - C_{12} alkylene, C_5 - C_{12} cycloalkylene or arylene wherein the alkylene and cycloalkylene may be interrupted by one or more O, S or N atoms.

14. (currently amended) A compound of formulae (Ia), (Ib) or (Ic)



wherein in the formulas

R₁, R₂, R₃ and R₄ are methyl or ethyl; or

R₁ and R₂ and/or R₃ and R₄ together with the carbon atom to which they are bonded form a C₅-C₈cycloalkyl_ring;

R₅ is H or methyl;

R₆ and R₇ are H, C₁-C₈-alkyl or aryl;

R₈ is H or methyl;

X is halogen or -SCN; and

A is O or NR₉ wherein R₉ is H or C₁-C₁₈alkyl, C₅-C₁₂cycloalkyl or aryl.

15. (currently amended) A stabilized composition[[.]] which comprises

(a) an organic material subject to degradation by heat, light or oxygen[[.]] and

a compound obtained by a process according to claim 1.

16. (currently amended) A composition according to claim 15 wherein the organic material component (a) is a natural or synthetic polymer.

17. (currently amended) A composition which comprises according to claim 15

an organic material subject to degradation by heat, light or oxygen,

a compound obtained by a process according to claim 1 and

~~which additionally contains~~ at least one coadditive stabilizer selected from the group consisting of the phenolic antioxidants, metal stearates, metal oxides, organophosphorus compounds, furanone antioxidants, hydroxylamines, UV absorbers, hindered amine[[s]] stabilizers different from that obtained according to the process of claim 1 and mixtures thereof.

18. (canceled)

19. (canceled)

20. (canceled)